CITY OF BRUNSWICK

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STANDARD OPERATING PROCEDURES
SUBDIVISION STREET AND ALLEY INSPECTIONS
Adopted July 8, 2003

Legal Authority:

Section 16.3, (10), (13) and (15) of the Charter of the Town of Brunswick.

Background:

In order to ensure the safety of the Citizens and assure reasonable maintenance of Developer Constructed Streets and Alleys, inspection procedures for streets and alleys are needed. The City of Brunswick is requiring that all subdivision streets and alleys be inspected prior to acceptance into the City Street System. The inspections will be by the City Engineer in conjunction with City Public Works at the expense of the Developer. Inspection scheduling shall be coordinated through the City Engineer.

Public Works Administration is responsible for maintaining subdivision project guarantees placed by an owner in accordance with a Public Works Agreement. Any requests for guarantee reductions or releases must be submitted in writing by the owner or his authorized agent. The requests will be logged and forwarded to the City Engineer for the appropriate inspection and subsequent recommendations. The City retains fifteen percent (15%) of the project's guaranteed amount through the one-year warranty period. This is to ensure completion of repairs due to any deficiencies in the material and/or workmanship.

Modifications to the approved improvement plans must be approved by the City Planning Commission with the recommendation of the City Engineer and City DPW prior to construction. All construction must be completed prior to the request for release of the associated guarantee and acceptance of the public improvements. However, prior to acceptance of the public improvements and final releases of the associated guarantee(s), the Developer may be required to submit to Public Works Administration an affidavit of payment of debts and claims relating to the construction of the improvements in a manner satisfactory to the City Attorney. Separate releases or waivers of liens from contractors, subcontractors, and material and equipment suppliers shall be required, as determined by the Public Works Administration.

SUBDIVISION CONSTRUCTION
INSPECTION PROCEDURES

Stage 1: Pre-Construction to Proof-Rolling Inspection

- A pre-construction meeting is required with the City Engineer and City DPW, to discuss street and storm drain construction phasing, unusual site conditions, special requirements, etc. The meeting may be held in conjunction with the required County Sediment and Storm Water pre-construction meeting.
- An inspection of the construction stakeout is required to verify centerline staking, slope staking, and limits of disturbance. (Line and grade).
- The contractor is required to contact the City Engineer 24 hours in advance of placing any controlled fill within the proposed right-of-way. Moisture/density testing is required in accordance with the approved specifications and Section 204 of the Maryland State Highway Specifications. All testing for fill areas, subgrade, culvert and structure backfill is to be performed by the Developer's Geotechnical Engineering Consultant and monitored by the City Engineer. Certification shall be provided by a MD Registered Professional Geotechnical Engineer that all compaction and soil bearing capacity results are within specification.
- If soil conditions are found to be inadequate for proper compaction, the Developer's MD Registered Geotechnical Engineer will be required to make recommendations including procedures for adherence to SHA Specifications. Upon the City Engineer's review/approval the recommendations shall be completed prior to beginning any controlled fill operations.
- Bench Marks shall be established and maintained the contractor until acceptance of the improvements. The contractor is required to contact the City Engineer 24 hours in advance of installing storm sewer, storm sewer appurtenances and curb and gutter. A proof roll is required for curb and gutter, prior to placement.

Stage 2: Proof-Roll Inspection

The subgrade shall be prepared for placement of the pavement section and compacted in accordance with Section 204 of the Maryland State Highway Specifications and any revisions addenda hereto and these procedures.

- The contractor shall schedule proof roll inspections with the City Engineer a minimum of 24 hours in advance, prior to placement of pavement and after satisfactory completion of subgrade density/moisture testing. .
- Proof rolls shall not be conducted on roadways without utility conditional acceptance by the City Engineer and City DPW.
- The proof roll shall be conducted in accordance with Section 204.03.01 C utilizing a 35-ton pneumatic tired roller, or a loaded tandem axle dump truck (equal capacity) or as approved by the City Engineer Subdivision Inspector. The number and location of the passes will be determined by the inspector.
- The proof roll shall be void after a change of site conditions or inclement weather and shall be redone. If the subgrade is modified such as by the use of soil cement stabilization, the proof roll will be conducted as recommended by the Developer's MD Registered Geotechnical Engineer.
- All areas of failure must be corrected prior to placement of the pavement section, and shall require an additional proof roll. A deflection of one (1) inch or more or any continuous "pumping action" in the subgrade shall be considered a failing proof roll. Please note that all proof roll results are at the discretion of the City Engineer Subdivision Inspector.
- Upon the request of the inspector, any street or utility grades shall be verified by the contractor.
- All streets shall be graded and aligned per the approved plans.
- All base course asphalt testing shall be done in accordance with Asphalt Testing Requirements.

- All proposed utilities must be installed prior to final subgrade preparation including water lines, sanitary sewer, storm sewer, gas lines, electric lines, etc. All existing utilities must be relocated prior to subgrade preparation.
- Structures within the roadway including storm sewer manholes and inlets, etc., must be placed at finished grade elevations. Sanitary sewer manholes and water valve boxes must be constructed in accordance with Roadway Utility Adjustment Procedures.
- Closed -section streets, the curb and gutter must be properly installed with backfill behind the curb compacted in accordance with Section 204 of the MD SHA Standard Specifications For Construction And Materials prior to placement of the bituminous pavement section. All joints must be sealed in accordance with section 610.03.01-2-g of the Maryland State Highway Administration Specifications.
- Open-section streets, if any, shall have the shoulder and ditch areas properly graded to preclude erosion of the pavement section and facilitate drainage away from the pavement utilizing bleeders.
- Any damaged curb and gutter must be repaired prior to base paving.
- If requested by the Developer, an inspection will be performed to process requests for reductions to the guarantee.

Stage 3: Base Course Inspection (Prior to placement of surface course)

- All Hot Mix Asphalt pavement shall be placed in accordance with Section504 of the MSHA Standard Specifications for Construction and Materials dated January 2001 and any supplements or addenda to this document. .
- All surface asphalt testing shall be performed in accordance with Attachment C.
- A tack coat shall be applied in accordance with Section 504.03.04 of the Maryland State Highway Administration Specifications.
- Prior to placing the surface course, the base course is to be inspected by the City Engineer for defects such as "alligator" cracking, surface deformations, subgrade failure, trench failures, depressions, slippage, etc. These items will be documented on an Inspector's Daily Report for use by the contractor for corrective action.
- Any deficiencies shall be repaired to the satisfaction of the City Engineer Inspector prior to surface paving. All repairs shall be performed in accordance with the MD State Highway Administrations Specifications. If necessary the repair recommendation shall come from the developer's MD Registered Geotechnical Engineer.
- Any damaged curb and gutter, sidewalks, driveway aprons, utilities, etc. shall be repaired prior to surface paving.
- All areas within the right-of-way must be graded properly to facilitate drainage in accordance with the approved construction plans.
- The base course shall be washed and swept clean of all debris, dust, dirt, etc. that would prevent proper bonding between the layers of asphalt.
- All sanitary sewer manholes, water valve boxes and inlets shall be placed to grade in accordance with Roadway Utility Adjustment Procedures.
- Prior to surface paving, the City Engineer Inspector shall approve the base asphalt.

Stage 4: Surface Course/Final Inspection (Prior to recommendation of final acceptance)

- All work must be completed and in accordance with the approved construction drawings and specifications. This includes paving, utility installation, grading, etc.
- All grassy areas must be stabilized to provide a 3" stand of vegetation.
- All debris, sediment control measures (as directed by the County Sediment Control and Storm Water Inspector) and construction materials must be removed from the right-of-way prior to recommendation of final acceptance.
- If required by the City Engineer, engineer certified "As- builts" shall be submitted for record of construction modifications.
- Prior to opening the road to public traffic, all traffic and street name signs shall be installed.

- Upon the Developer's written request and after all work has been completed, a final inspection will be performed with representatives from the City Engineer, City DPW and County SEC/SWM Inspectors for recommendation of final acceptance (herein referred to as conditional acceptance) of the improvements and reduction of the Letter of Credit to a balance of 15% of the original guarantee amount (as in accordance with the latest City of Brunswick Public Works Agreement, PWA).
- Any items from the walk-through will be documented in punch list format. A copy of this punch list will be sent to the owner for their use in completing the work.
- Punch list items should be completed as soon as possible (no later than 90 days) to avoid any additional items that may warrant repairs. (The Developer is responsible for repair of all deficiencies prior to conditional acceptance). Conditional acceptance by the City Engineer Inspector shall begin the one-year warranty period. 15% of the total guaranteed amount shall be retained throughout this warranty period (as in accordance with the latest approved PWA)
- An inspection by representatives from City Engineer and City DPW will be conducted to determine any failures in material and/ or workmanship on or before the expiration of the one-year warranty period.
- The owner shall have 90 days from the date of City Notification within the one year warranty Walk-through period to correct the deficiencies.
- If additional time is required to perform the repairs, the owner shall submit a written schedule indicating the time frame in which work can be completed. Time extensions for repairs will be considered by the City Engineer and Public Works Administration to unseasonable weather conditions.
- Upon completion of the warranty repair items, the owner shall submit in writing a request for release of the 15% retainage and acceptance of the repairs.
- If the repairs are not completed to the satisfaction of the City Engineer within the 90 day period, monies from the retain age may be utilized by the City of Brunswick, at its discretion, to correct the deficiencies. Remaining funds not needed by the City of Brunswick to complete the deficiencies shall be returned to the owner.

Roadway Utility Adjustment
Inspection Procedures

Utilities Inspections:

- All utility Valve Boxes inspected by the City Engineer and City DPW that are located in a paved street will be set two to three inches below finished grade of the street and identified with guard stakes and ribbon.

- Manhole frames are not to be parged to the brickwork. Brickwork or grade rings, however, will be parged and coated.

- Frame and cover are to be bolted down to brickwork and manhole tested.

- All utilities not located in paved or proposed paved streets shall be constructed according to plans and specifications to the proposed grade.

- Special care must be taken to ensure that surface water will run away from the manhole openings. Provide positive drainage away from manholes.

- After conditional acceptance has been issued, all further utility adjustments in street areas will be the responsibility of the developer or his authorized agent. Documentation of any adjustments required after final acceptance shall be submitted to the City Engineer for approval.

Subdivision Inspections:

- No paving may take place until utilities located within the paved roadway have been conditionally accepted by the City Engineer and City DPW.
- Install curb and gutter per plans.
- Final set manhole frames and valve boxes to 1/4" below the proposed finish grade of the next to the last bituminous concrete course, by the string-line method. Special care must be taken at this time to keep debris from entering the structure.
- Parge manhole frames to brickwork and coat per Standard Detail.
- Install bituminous concrete as specified; the next lift is to be 1/4" above the utility structures. Special attention must be given to compaction around manholes and valve boxes.
- Prior to final lift of surface course, raise manhole frames and valve boxes to 1/4" below final finish grade utilizing an approved adjustment ring.
- Prior to placement of final surface course, any damaged structures shall be repaired as directed by the City Engineer Inspector. Hand tamp excavated filet around structures using bituminous concrete.
- Install final bituminous concrete wearing course upon approval from the City Engineer Inspector.

General Notes:

1.) At no time is concrete to be placed around manhole frames or valve boxes. The only exceptions are when specifically noted on the plan per the City Engineer.

2.) Once a sanitary sewer has been leak tested, approved, and conditionally accepted by the City Engineer and City DPW, a second leak test will not be required after adjustment of the frame and cover to grade.

3.) If the contractor must remove the cone section to adjust the frame to finish grade in keeping within the six brick, 18" grade ring maximum requirement, a leakage test of that structure may be required at the discretion of the City Engineer Inspector prior to paving operations.

Procedures for Asphalt Testing Requirements
New Construction of Subdivision Streets

- The producer shall use verified mix designs in current approval of the Maryland State Highway Administration, and provide the City Engineer the proper documentation for each project/band prior to placing any bituminous concrete. This may include Superpave mixes. (Please note: The use of Recycled Asphalt Product (RAP) in Bituminous Concrete Surface Mix is not recommended. RAP may be used for surface mix at the discretion of the City Engineer.)
- Prior to production, the producer shall provide the Maximum Theoretical Density of each mix to the City Engineer including Superpave Mixes.
- For each project/band during production, the producer shall perform laboratory / plant testing of the material. The producer shall provide to the City Engineer within forty-eight (48) hours after production, certified test results to include the following:

1.) Gradation
2.) Asphalt Extraction
3.) Maximum Gravity
4.) Strip Test Results
5.) Weights Delivered
6.) Refinery Certification of Liquid Asphalt

Random samples taken by the contractor may be required by the City Engineer for laboratory testing by the Maryland State Highway Administration. Non-conformance remedies will follow SHA specifications.

(Please note: If requested by the City Engineer a verified mix design shall be submitted for approval prior to use in the project.)

- During asphalt placement for each project/band, and by utilizing Nuclear Density Testing equipment specified by the State Highway Administration, field-testing shall be performed for "In-Place" density, assuring compaction in the 92% to 97% range. All field testing shall be performed by the paving contractor's certified nuclear gauge operator and witnessed by the City Engineer. In addition, certified test results of density achieved shall be submitted by the paving contractor or his representative to the City Engineer within forty-eight (48) hours after placement of asphalt.

- If requested by the City Engineer, the contractor may be required to take three core samples for every lot of placed material as per Maryland State Highway Administration Specifications no. 504.03.09 (B).

Subdivision Construction Inspection
General Notes

1.) A pre-construction meeting shall be required with the City Engineer and City DPW to discuss construction phasing, unusual site conditions, special requirements, etc.

2.) An inspection of the construction stakeout is required by the City Engineer.

3.) All work and construction methods and materials shall be in accordance with the Maryland State Highway Standard Specifications for Construction I and Materials dated October 1993 and all current revisions and supplements.

4.) The contractor shall be required to contact the City Engineer 24 hours in advance of placing any controlled fill within the proposed right-of-way. Moisture / density testing is required in accordance with the approved specifications and Section 204 of the Maryland State Highway Standard Specifications for Construction and Materials dated January 2001 and all current revisions and supplements. All moisture density for fill areas, sub grade, culvert and structure backfill is to be performed by the developer's geotechnical engineer and monitored by the City Engineer. Any proposed subgrade drainage must be designed by a Maryland Professional Engineer and approved by the City Engineer prior to installation. Soil bearing capacity shall be certified.

5.) All required roadway signs, barricades, striping, and pavement markings shall be in accordance with The Manual on Uniform Traffic Control Devices (MUTCD) and City of Brunswick Standards.

6.) If required, a Maintenance of Traffic (MOT) Plan shall be submitted to the City Engineer, City Traffic Consultant and Chief of Police for written approval prior to commencement of the work. **(Any anticipated road closures shall be requested in writing and require an approved MOT Plan. All road closure requests shall be approved in writing by the Chief of Police.)**

7.) Bench marks shall be established and maintained until acceptance of the improvements.

8.) The contractor shall be required to contact the City Engineer 24 hours in advance of installing storm drains, storm drainage appurtenances and curb and gutter. A proof roll is required prior to placing curb and gutter.

9.) The contractor shall schedule proof roll inspections with the City Engineer a minimum of 24 hours in advance, prior to placement of pavement and after satisfactory completion of subgrade density/moisture testing, MD 204.03.04 specifications shall apply.

10.) Prior to placing the surface asphalt course, the base course shall be inspected by the City Engineer. The Contractor is required to contact the City Engineer 24 hours in advance of placing surface asphalt course.

11.) All work shall be completed in accordance with the approved plans and specifications prior to the City Engineer recommending acceptance of the street(s). All proposed streets to be accepted must pass a final walk-through inspection by the City Engineer and City DPW.

Subdivision Street Inspection Procedures

- All references to the Maryland State Highway Administration Specifications concerning embankment placement and subgrade preparation should now reference Sections 204 and 916. See Requirements for Placing Controlled Fills in Right-of-Way, which further defines the necessary procedures for embankment placement.

- All developers or contractors wishing to utilize Graded Aggregate Subbase (GASB) in their project must first contact the City Engineer. The area(s) to receive GASB must first be proof rolled to verify suitable subgrade. All GASB must be constructed in accordance with Section 501 of The Maryland State Highway Administration Specifications to include compaction testing by the Developer's Geotechnical Consultant.

- Any utilities (Allegheny Power, Verizon, Gas Company, etc.) that are not placed in the roadway prior to base paving, must be placed a depth of three (3) feet below subgrade and in accordance with the City of Brunswick Specifications for Placement of Utilities within City Right(s)-of-Way which states:

  Those utilities which are to be installed in new subdivision streets shall be installed in the following manner; If the bituminous concrete roadway has been placed, no open cutting will be allowed. It will be the responsibility of the utility company to either bore or push utilities in these locations. This applies to all streets where it is anticipated that these streets will eventually be taken into the City System for maintenance. Any trenching shall be accomplished before the shoulder work and seeding and mulching are accomplished.

- The code of Maryland requires all monuments (a minimum of four (4) traverse points) and markers (all property corners) to be set. Therefore, prior to acceptance of the streets a surveyor registered in the State of Maryland must certify in writing that all monuments/markers have been placed.

- All required submissions, geotechnical compaction reports, asphalt compaction reports, proctors, etc. must be mailed or hand-delivered to the City Engineer. If properly coordinated, this information may be given to the field inspector. Facsimiles will not be accepted.

- If guardrail is proposed on the improvement plans at specific locations, typically, the "As-built" conditions require additional or less guardrail than that specified. Therefore, prior to guardrail

installation, the contractor must contact the City Engineer and City DPW twenty-four (24) hours in advance of construction to verify the location of the guardrail. This is the accepted method of guardrail installation throughout the industry. Also, a note must be provided on all improvement plans proposing guardrail stating "guardrail limits shown are approximate, final limits to be determined in the field based on "As-built" conditions."

Requirements for Placing Controlled Fills in Right-Of- Way

REF. SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS SECTIONS 204 & 916

- AASHTO T -180, Method C proctor will be required for each type of soil used in controlled fills and storm sewer trenched in the right-of-way. Proctor curve is required with maximum density, optimum moisture and soil type description. An adequate number of steps shall be shown on the curve; minimum of four (4). This information must be approved by the City Engineer prior to placement of any fill.

- An alternative method of compaction to the AASHTO T-I80, Method C may be submitted to the City Engineer for consideration of approval. Any alternate method submitted shall be sealed by a Maryland Registered Professional Engineer and if implemented shall be monitored by a Registered Professional Geotechnical Engineer.

- Before operations commence, a proof roll of existing insitu soil may be required at the discretion of the City Engineer on specific area(s) to determine method of placement of fill if necessary.

- Prior to placement of fill, the proposed testing methods and required reports will be reviewed by the City Engineer.

- A one-step moisture density test will be required if soil type, moisture or other changes are detected; Geotech/ City Engineer will determine if needed.

- The number of compaction tests will be decided on a job-by-job basis. Normally, after testing each of the first three (3) lifts, tests will be taken on every two (2) feet of fill and/ or once a day.

- Each lift tested shall have the required percentage of compaction and ±2% optimum moisture before next lift is placed.

- All failing test areas will be corrected in accordance with SHA Section 204.03.04, by reworking, drying, etc. and will be retested until the required percentage of compaction and/ or proper percent moisture is obtained and an explanation of corrective action will be shown for each failing test on the daily report.

- Test results are to be returned to the City Engineer within forty-eight (48) hours. Contractor's representative will sign off on each day's test results.